UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEPHEN F. SICHI, ELIZABETH J. KLEIN-LEBBINK,
and LISA KUO

Appeal 2007-1362
Application 09/972,107
Technology Center 2600

Decided: September 26, 2007

Before JOHN C. MARTIN, MAHSHID D. SAADAT,
and ROBERT E. NAPPI, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-3, 5-15, and 17-26, which are all of the claims pending in this application as claims 4 and 16 have been canceled. We have jurisdiction under 35 U.S.C. § 6(b).

Appellants' invention relates to a switching method and apparatus used in satellite transponder applications (Specification 3). According to Appellants, typical switching networks, as depicted in Figure 2, require the

signal path from amplifier 202 to pass through at least two switches, 204 and 206, in order to reach any of the antennae 208A-208C (Specification 5:27-29). Appellants provide a switching network which does not require that the amplifier signal pass through two switches to reach each antenna (Specification 6:11-22). As shown in Figure 3, by appropriate selection of switch 304, a signal at link 310 from amplifier 302 may be provided to link 312A, which routes the signal to antenna 208A, or to link 316B, which further routes the signal through switch 318 either to antenna 208B or to antenna 208C (*id.*).

Independent claims 1, 11, and 18 are representative and read as follows:

> 1. An [sic] transponder system, comprising:
>
> an amplifier network having a plurality of amplifiers;
>
> an antenna network, comprising a plurality of antennae;
>
> a single rail output switching network, including a first output switching network switch, selectably coupling one of the amplifiers to one of the plurality of antennae at a first output switching network switch first switch state and to a second output switching network switch in a first output switch network switch second switch state; and
>
> wherein the second output switching network switch is selectably coupled to a second one of the plurality of antennae in a second output switching network switch first switch state and to a third one of the plurality of antennae in a second output switching network switch second switch state.

11. A network, comprising:

an [sic] first device network having a plurality of first devices;

a second device network, having a plurality of second devices;

a single rail output switching network, communicatively coupling any of the second devices with any of the first devices, wherein the first device network is an antenna network and the first devices are antennae, and the second device network is an amplifier network and the second devices are amplifiers.

18. A method of providing a signal to any one of a plurality of output devices, comprising the steps of:

receiving the signal in a first switch;

selectably coupling the signal to a first output device or a second switch via a first switch according to a first switch selection; and

selectably coupling the signal from the first switch to a second output device or a third output device if the signal is not coupled to the first output device via the second switch according to a second switch selection.

Independent claims 20 and 22 are similar in scope to claim 18.

The Examiner relies on the following prior art in rejecting the claims:

Vannatta	US 5,649,306	Jul. 15, 1997
Collar	US 6,020,796	Feb. 1, 2000
Vaisanen	US 6,560,443 B1	May 6, 2003

The Examiner rejected claims 1-3, 5-15, and 17-26 under 35 U.S.C. § 102(b) as being anticipated by Collar and claims 18 and 20 under

35 U.S.C. § 102(b) as being anticipated by Vannatta and under 35 U.S.C. § 102(e) as being anticipated by Vaisanen.

We affirm-in-part.

ISSUES[1]

1. Does Collar's row of switches 8 function as a single rail output switching network for coupling an amplifier network and an antenna network, as required by claims 1 and 11?

2. Do Collar's row 8 switches provide the types of connections required by claims 1, 18, 20, and 22?

3. Do Vannatta's switches 121 and 130 function in the manner required by claims 18 and 20?

4. Do Vaisanen's switches SW1 and SW2 function in the manner required by claims 18 and 20?

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[1] The issues as stated herein represent the contentions of Appellants, who have the burden on appeal to the Board to point out the errors in the Examiner's position. *See Gechter v. Davidson*, 116 F.3d 1454, 1460, 43 USPQ2d 1030, 1035 (Fed. Cir. 1997) ("[W]e expect that the Board's anticipation analysis be conducted on a limitation by limitation basis, with specific fact findings for each *contested* limitation and satisfactory explanations for such findings.") (emphasis added); *In re Kahn*, 441 F.3d 977, 985-86, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection [under § 103] by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.") (quoting *In re Rouffet*, 149 F.3d 1350, 1355 47 USPQ2d 1453, 1455 (Fed. Cir. 1998)).

FINDINGS OF FACT

The following findings of fact (FF) are relevant to the issue involved in the appeal and are believed to be supported by a preponderance of the evidence.

1. Collar relates to switching means for use on-board a spacecraft (col. 1, ll. 6-7).

2. Collar's switching means can be used in a satellite having a receiving antenna and a transponder in which the wideband F.D.M. signal is amplified and filtered, de-multiplexed into respective channel slots, amplified in the narrow band slots, and filtered in those slots and multiplexed for passage to the transmitting antenna (col. 2, ll. 45-50).

3. As depicted in Figure 3, Collar provides for a first row of switches 5 (col. 3, l. 63 through col. 4, l. 2), and a second row of switches 6 (col. 4, ll. 6-17) as the input switching network. Similarly, two rows of switches 7 and 8 form the output switching network, which is connected to the input network through amplifier sets 9 and 10. The switches in row 5 are shown connected in a single ring, as are the switches in row 8. The switches in row 6 are connected in two rings, as are the switches in row 7.

4. Collar further discloses different arrangements, including connecting the switches in each of rows 5 and 8 in two rings and connecting the switches in each of rows 6 and 7 in a single ring (col. 5, ll. 17-21).

5. Vannatta relates to a portable radio phone and shows in Figure 5 switches 121 and 130 which are selectively coupled to each other while switch 130 is further coupled to speaker 178 and microphone 182 via the transmitter and receiver circuitry 190 and 166 (col. 5, ll. 22-43).

6. Processor 198 of Vannatta controls the operation of circuits 166 and 190 as well as switches 130 and 121 (col. 5, ll. 44-47) based on the closed or open position of the housing element 51 of the phone sensed by sensor 199 (col. 5, ll. 48-59).

7. Figure 1 of Vaisanen shows a mobile terminal having diversity antennas ANT1 and ANT2. Switch SW1 selectively couples WLAN 11 to either antenna ANT1 or a terminal of switch SW2, which selectively couples antenna ANT2 to either SW1 or BT (Bluetooth) 12 (col. 6, ll. 36-53).

PRINCIPLES OF LAW

A rejection for anticipation requires that the four corners of a single prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation. *See Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1946 (Fed. Cir. 1999); *In re Paulsen*, 30 F.3d 1475, 1478-79, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994).

ANALYSIS

1. Rejection of claims 1-3, 5-15, and 17-26 over Collar

Claim 11 recites a "single rail output switching device" for communicatively coupling any of a plurality of amplifiers in an amplifier network to any of a plurality of antennas in an antenna network. We agree with Appellants that this claim permits only one rail of switches to be used to couple the amplifier network and the antenna network and thus precludes

using two rails for that purpose (Br. 6). The similar language in claim 1 is being construed in the same way.

As described above, the switching network of Collar uses two sets of switches in each of the input and the output networks (FF 2 & 3). The sets 7 and 8 are parts of the output switching network and are depicted in Figure 3 as either a single ring or a double ring arrangement (FF 4). The Examiner reads the recited single rail output switching network on the switches of row 8 (Answer 10). Appellants do not deny that the row 8 switches constitute a rail of output switches. Instead, Appellants argue that the row 7 switches form a second rail of output switches and that Collar therefore discloses "a rather traditional dual rail switching network, not the single rail network with the connectivity described in claim 1" (Br. 6). The Examiner (Answer 9) contends it is incorrect to characterize Collar as disclosing a "dual rail" switching network because Collar's row 7 and row 8 switches are not related in the same way as are the switches in the two rails in each of the redundancy rings 740 and 742 in Appellants' Figure 7, which the Specification describes as depicting a "typical transponder architecture" at page 7, line 20. Specifically, based on the Specification's description of the function of these redundancy rings the Examiner contends that "'dual rail' is two rails with the same elements or duplicated to each other's, e.g., having the same dual driver power, dual driver amplifier, etc." (Answer 9). The Examiner further contends that because Collar's system therefore is not a "dual rail" system, "the ring 8 is a **single** output switching ring or single output rail switching network, and the ring 7 of switches is just intermediate switches, which is not composited [sic] as a redundancy ring or rail" (*id.*).

We do not agree. Whether or not the Examiner is correct to limit the term "dual rail" to the architecture shown in Appellant's Figure 7, Collar's row 7 and row 8 switches clearly are arranged as two rails coupling the amplifier network to the antenna network.

Therefore, Collar cannot anticipate claims 1 and 11 which require a *single rail* output network.

With respect to the rejection of claims 18, 20, and 22, we note that these claims do not recite any limitations that would require the output network to be a single rail network. Claim 18 recites "selectably coupling the signal to a first output device or a second switch via a first switch according to a first switch selection," which Appellants argue (Reply Br. 5) requires that "a signal" applied to the first switch be selectably connectable thereby to either one of an output device and a second switch. The Examiner's position is that the "or" terminology makes this claim language broad enough to read on a first switch that can selectably couple a signal to a second switch without also having the capability to alternatively selectably couple the signal to a first output device (Answer 10). The claim uses similar language to describe the operation of the second switch: "selectably coupling the signal from the first switch to a second output device or a third output device if the signal is not coupled to the first output device via the second switch according to a second switch selection."

In our view, Appellants' interpretation of the claim language is the correct one when the claims are considered as a whole.

As depicted in Figure 3 of Collar, the switch designated by number 8^1 allows the signal from switch 7^1 be selectably coupled to a first output

device or to a second switch such as 8^2, which allows the signal from 8^1 be coupled to a second or a third output device based on how switch 8^2 is selected. Although the third output device is accessed through another switch (8^3) in Collar, the claim does not preclude an indirect coupling to a third output device through another switch. Thus, we find no error in the Examiner's position finding claims 18, 20, and 22 anticipated by Collar.

2. Rejection of claims 18 and 20 over Vannatta

Based on the determination of the scope of claims 18 and 20 (*supra*), we agree with Appellants (Br. 16) that switch 121 does not include all the features of the claimed first switch. In fact, switch 121 of Vannatta acting as the "first switch" selects between input signals from antennae 112 and 113 the signal to be coupled to switch 130. *See* Figure 5. Similarly, switch 130, as the second switch, receives the signal from either switch 121 or antenna 106 and selectably couples the signal to output devices 178 and 182 (FF 5). However, switch 121 couples the input signal only to a second switch and lacks the connection to a first output device. The only other element that is coupled to switch 121 is the processor 198 which is not an output device (FF 6). Thus, Vannatta cannot anticipate claims 18 and 20 since it does not disclose all the recited limitations of these claims.

3. Rejection of claims 18 and 20 over Vaisanen

We also agree with Appellants' argument (Br. 17-18) that Figure 1 of Vaisanen does not disclose the second switch coupling the signal received in the first switch to a second and third output device. As shown in Figure 1 of Vaisanen, the "second" switch SW1 couples the signal from the "first" switch SW2 to only one element, designated as WLAN (11). Even if

WLAN can be considered to be an output device corresponding to the claimed "second output device," Vaisanen still lacks a third output device to which the signal from "second" switch SW1 may be coupled. As such, Vaisanen does not disclose all the claimed limitations and therefore, cannot anticipate claims 18 and 20.

CONCLUSION

On the record before us, we find that the Examiner fails to make a prima facie case that Collar anticipates independent claim 1 or independent claim 11, both of which recite a "single rail output switching network." Therefore, in view of our analysis above, the 35 U.S.C. § 102 rejection of those claims and their dependent claims 2, 3, 5-10, 12-15, and 17 as anticipated by Collar cannot be sustained. However, we reach the opposite conclusion with respect to the rejection of claims 18-26, which do not recite a "single rail output switching network," as anticipated by Collar. Additionally, we do not sustain the 35 U.S.C. § 102 rejection of claims 18 and 20 as anticipated by Vannatta or Vaisanen as the references fail to teach all the limitations of these claims.

DECISION

The decision of the Examiner rejecting claims 1-3, 5-15, and 17-26 under 35 U.S.C. § 102 based on Collar is reversed with respect to claims 1-3, 5-15, and 17 and affirmed with respect to claims 18-26. The § 102 rejection of claims 18 and 20 based on Vannatta is reversed, as is the § 102 rejection of those claims based on Vaisanen.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(i)(iv)(2006).

AFFIRMED-IN-PART

tdl/gw

GATES & COOPER LLP
HOWARD HUGHES CENTER
6701 CENTER DRIVE WEST, SUITE 1050
LOS ANGELES, CA 90045